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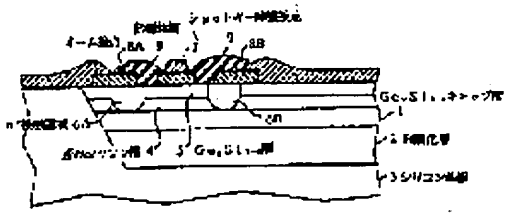
(54) SEMICONDUCTOR DEVICE AND PRODUCING METHOD THEREFOR

(57) Abstract:
PURPOSE: To grow a large area hetero body structure of hierarchized GexSi1-x alloy having a low-level threading transfer defect on silicon by growing germanium-silicon alloy at a high temperature and increasing the germanium component with a gradient more than a specified value.
CONSTITUTION: A silicon substrate 3 is prepared. The substrate is a sort of standard (100) direction silicon wafer generally used for producing an integrated circuit. A large area hierarchized layer 2 of germanium-silicon alloy GexSi1-x is grown on the silicon substrate 3 at a high temperature. A growing process is chemical vapor deposition(CVD) or molecular beam epitaxy (MBE). A substrate growth starting temperature is in a range of 850 to 1100°C. Thus, the area of hierarchized alloy exceeds 1200 micrometer 2. The start composition is preferably pure silicon. The germanium forms GexSi1-x with the gradient less than about 25%/micron.



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